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WHAT IS CLAIMED IS: —

1. An intercoupling component for receiving an array of contacts within a digital or analog transmission system having an electrical ground circuit and a chassis ground circuit, the intercoupling component comprising:

a segment formed of electrically insulative material and having an upper and lower surface, the segment including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of a contacts; and

a shield member formed of electrically conductive material and at least partially disposed within the segment and configured to electrically connect to the chassis ground circuit.

2. The intercoupling component of claim 1, further comprising:

a plurality of electrically conductive signal contacts configured to transmit a digital or analog communication signal, each signal contact disposed within a hole on the upper surface of the segment forming an array of signal contacts, and wherein the shield member is at least partially disposed within the array of signal contacts.

3. The intercoupling component of claim 2, further comprising:

a plurality of electrically conductive reference contacts each disposed within a hole on the upper surface of the segment, wherein the electrically conductive reference contacts are configured to electrically connect to the reference ground circuit of the system.

4. The intercoupling component of claim 3, wherein the plurality of electrically conductive reference contacts is disposed within the array of signal contacts.

5. The intercoupling component of claim 2, further comprising:

a ground plane disposed at least partially within the segment and within the array of signal contacts, and wherein the ground plane is configured to electrically connect with the reference ground circuit of the system.

6. The intercoupling component of claim 5, further comprising:

a plurality of ground planes disposed at least partially within the segment and within the array of signal contacts, and wherein the plurality of ground planes is configured to electrically connect with the reference ground circuit of the system.

7. The intercoupling component of claim 2, further comprising:

a frame formed of electrically conductive material at least partially surrounding the segment and in electrical contact with the shield member and configured to electrically connect to the chassis ground circuit.

8. The intercoupling component of claim 1, wherein the segment has a contiguous edge defining its perimeter, and the shield member is disposed within the segment and surrounds the perimeter of the segment.

9. The intercoupling component of claim 7, further comprising a plurality of shield members disposed within the segment and each in electrical contact with the frame.

10. The intercoupling component of claim 1, wherein the segment is molded at least partially around the shield member.

11. The intercoupling component of claim 2, wherein the segment further includes at least one cavity filled with air disposed on the segment and within the array of signal contacts.

12. The intercoupling component of claim 3, further comprising a retention member configured to releasably retain the array of contacts with the plurality of signal contact and reference contacts.

13. An intercoupling component for receiving an array of contacts within a digital or analog transmission system having an electrical ground circuit and a chassis ground circuit, the intercoupling component comprising:

a plurality of segments formed of electrically insulative material, spaces between adjacent segments defining at least one gap, each segment having an upper and lower surface and including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of a contacts; and

a shield member formed of electrically conductive material disposed within at least one gap between adjacent segments and configured to electrically connect with the chassis ground circuit of the system.

14. The intercoupling component of claim 13, further comprising:

a plurality of shield members formed of electrically conductive material disposed within a plurality of gaps between adjacent segments configured to electrically connect with the chassis ground circuit of the system.

15. The intercoupling component of claim 14, further comprising:

a frame formed of electrically conductive material surrounding the plurality of segments and in electrical contact with the plurality of shield members.

16. The intercoupling component of claim 13, further comprising:

a plurality of electrically conductive contacts each disposed within a hole on the upper surface of the segment and configured to releasably retain the array of contacts.

17. The intercoupling component of claim 16, wherein at least one of the plurality of electrically conductive contacts is configured to electrically connect with the electrical ground of the system.

18. The intercoupling component of claim 16, further comprising:

a ground plane disposed at least partially within the segment, wherein the ground plane is configured to electrically connect with the reference ground circuit of the system.

19. An intercoupling component for receiving an array of contacts within a digital or analog transmission system having an electrical ground circuit and a chassis ground circuit, the intercoupling component comprising:

a segment formed of electrically insulative material and having an upper and lower surface, the segment including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of a contacts; and

a plurality of electrically conductive contacts each disposed within each hole on the upper surface of the segment, wherein the plurality of contacts are arranged in a plurality of multi-contact groupings, at least one multi-contact grouping comprising:

a first electrically conductive contact; and

a reference contact located at a distance D from the first electrically conductive contact and configured to electrically connect to the electrical ground circuit of the system.

20. The intercoupling component of claim 19, wherein the first electrically conductive contact and reference form a transmission line electrically equivalent to a co-axial transmission line.

21. The intercoupling component of claim 19, wherein each multi-contact grouping is located a distance of ≥D from adjacent multi-contact groupings.

22. The intercoupling component of claim 19, wherein the first electrically conductive contact is configured to transmit single-ended signals.

23. The intercoupling component of claim 19, further comprising:

a second electrically conductive contact member located at a distance D2 from the first electrically conductive contact.

24. The intercoupling component of claim 23, wherein the first and second electrically conductive contacts form a transmission line electrically equivalent to a twin-axial differential transmission line.

25. The intercoupling component of claim 23, wherein each multi-contact grouping is located a distance ≥D2 from adjacent multi-contact groupings.

26. The intercoupling component of claim 25, wherein D > D2.

27. The intercoupling component of claim 25, wherein D=D2.

28. The intercoupling component of claim 19, wherein the first and second electrically conductive contacts within each multi-contact grouping are configured to transmit disparate single-ended signals.

29. The intercoupling component of claim 19, wherein the first and second electrically conductive contacts have substantially the same cross-section.

30. The intercoupling component of claim 29, wherein the first, second and reference electrically conductive contacts have substantially the same cross-section.

31. The intercoupling component of claim 19, wherein the first and second electrically conductive contacts have substantially the same initial characteristic impedance.

32. The intercoupling component of claim 24, wherein the first and second electrically conductive contacts within each multi-contact grouping are configured to transmit low voltage differential signals.

33. The intercoupling component of claim 32, wherein the differential impedance of the first and second electrically conductive contacts within each multi-contact grouping is approximately 100 ohms.

34. The intercoupling component of claim 19, further comprising:

a shield member formed of electrically conductive material disposed within the segment and configured to electrically connect with the chassis ground circuit of the system.

35. The intercoupling component of claim 34, further comprising:

a frame formed of electrically conductive material surrounding the segment and in electrical contact with the shield member and configured to electrically connect with the chassis ground circuit of the system.

36. The intercoupling component of claim 19, further comprising:

a plurality of segments formed of electrically insulative material, spaces between adjacent segments defining at least one gap, each segment having an upper and lower surface and including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of a contacts; and

a shield member formed of electrically conductive material disposed within at least one gap between adjacent segments and is in electrical contact with the electrical ground of the system.

37. The intercoupling component of claim 36, further comprising:

a frame formed of electrically conductive material surrounding the plurality of segments and in electrical contact with the plurality of shield members and configured to electrically connect with the chassis ground circuit of the system.

38. The intercoupling component of claim 19, further comprising:

a ground plane disposed at least partially within the segment, wherein the ground plane is configured to electrically connect with the reference ground circuit of the system.

39. A circuit card for use in a digital or analog transmission system having an electrical ground circuit and a chassis ground circuit, the circuit card comprising:

a printed circuit board having a plurality of contact pads arranged in a predetermined footprint; and

an interconnection device comprising:

a segment having an upper and lower surface, the segment having a plurality of holes extending through the upper and lower surfaces and arranged in a predetermined footprint to match the predetermined footprint of the plurality of surface mount pads;

a plurality of electrically conductive contact member disposed within each of the holes and electrically connected to their respective surface mount pad;

a shield member formed of electrically conductive material disposed within the segment;

a frame formed of electrically conductive material surrounding the segment, the frame electrically connected the shield member and to the chassis ground circuit of the system.

40. The circuit card of claim 39, wherein the plurality of contacts are arranged in a plurality of multi-contact groupings, each multi-contact grouping comprising:

a first electrically conductive contact; and

a reference contact located at a distance D from the first electrically conductive contact and connected to the electrical ground circuit of the system.

41. The circuit card of claim 40, wherein the multi-contact grouping further comprises:

a second electrically conductive contact located a distance D2 from the first electrically conductive contact.

42. The circuit card of claim 40, wherein the interconnection device further comprises:

a ground plane disposed at least partially within the segment, wherein the ground plane is configured to electrically connect with the reference ground circuit of the system.

43. The circuit card of claim 41, wherein the first and second electrically conductive contacts form a transmission line electrically equivalent to a twin-axial differential transmission line.

44. An intercoupling component for receiving an array of contacts within a digital or analog transmission system having an electrical ground circuit, the intercoupling component comprising:

a segment formed of a material having a dielectric constant Er_1, and having an upper and lower surface, the segment including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of a contacts;

a first signal contact disposed within a first hole on the segment; and

a second signal contact disposed within a second hole on the segment adjacent to the first hole in which the first signal contact is disposed, and wherein a cavity is formed in the segment between the first and second hole.

45. The intercoupling component of claim 44, wherein the cavity is formed on the upper surface of the segment and is open to air.

46. The intercoupling component of claim 44, further comprising an insert formed of a material having a dielectric constant of Er_2, the insert disposed within the cavity.

47. The intercoupling component of claim 46, wherein $Er_1 > Er_2$.

48. The intercoupling component of claim 46, wherein $Er_1 < Er_2$.

49. The intercoupling component of claim 44, wherein the cavity is formed within the segment and is filled with a dielectric material.

50. The intercoupling component of claim 49, wherein the dielectric material is air.

51. The intercoupling component of claim 44, further comprising a plurality of first signal contacts disposed within a plurality of holes and a plurality of second signal contacts each disposed within a hole that is adjacent to a hole containing a first signal contact, the plurality of first and second signal contacts forming an array of signal contacts, and wherein a cavity is formed in the segment between each pair of first and second signal contacts.

52. The intercoupling component of claim 51, further comprising a plurality of ground contacts disposed within a plurality of holes on the segment and disposed within the array of signal contacts, the plurality of ground contacts electrically connected to the electrical ground circuit of the system.

53. The intercoupling component of claim 51, further comprising a ground shield disposed with the segment and configured to electrically connect with the electrical ground circuit of the system.

54. A method for adjusting the differential impedance of a pair of differential transmission lines in a interconnection device for receiving an array of contacts within a digital or analog transmission system having an electrical ground circuit, the intercoupling component comprising, the method comprising:

providing a segment formed of a material having a dielectric constant Er_1 and having an upper and lower surface, the segment including a plurality of holes disposed on its upper surface;

providing a pair of signal contacts disposed within two adjacent holes on the segment, the pair of signal contacts configured to transmit differential signals;

spacing the pair of signal contacts such that they create a certain differential impedance between the two contacts in the pair of signal contacts; and

providing a cavity in the segment between the two signal contacts in the pair of signal contacts to adjust the differential impedance between the pair of signal contacts.

55. The method of claim 54, further comprising:

inserting a material having a dielectric constant of Er_2 in the cavity in the segment.

56. The method of claim 54, further comprising:

providing a plurality of pairs of signal contacts disposed with a plurality of adjacent holes on the segment, the plurality of pairs of signal contacts forming an array of pairs of signal contacts disposed in the segment; and

providing a plurality of cavities disposed in the segment between the two signal contacts in each pair of signal contacts to adjust the differential impedance of the two signal contacts in each pair of signal contacts.

57. The method of claim 56, further comprising:

providing a plurality of ground contacts disposed within a plurality of holes on the segment and within the array of pairs of signal contacts, the plurality of ground contacts electrically connected to the electrical ground circuit of the system.

58. The method of claim 56, further comprising:

providing a ground plane disposed within the segment and within the array of pairs of signal contacts, the ground plane configured to electrically connect with the electrical ground of the system.